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Abstract

The opioid epidemic is an issue that has affected the United States as a whole. However, it has disproportionately affected rural areas the most, with some rural areas having the highest overdose rates, overdose mortality rates, and opioid use rates in the entire country. This paper analyzes the opioid epidemic in rural areas to determine how the opioid epidemic started in the United States, how it transferred to rural areas, and its current status within these areas. In addition, factors relating to the perpetuation of the opioid epidemic are presented concerning rural areas as well as possible policy implications that can assist in combating the issue.

An Analysis of the Opioid Epidemic in Rural Areas

The use and abuse of opioid drugs in the United States has been an issue that has steadily risen over the past several decades, with over 700,000 people dying from drug overdoses from 1999 to 2017 (Reider, 2019). This opioid epidemic is one that has affected individuals far and wide across the United States, with a current death rate of 130 people per day. This means that 130 different individuals overdose and die as a result of opioid abuse. Lyden and Binswanger (2019) also note that the rate of hospitalization as a result of opioid overdoses increased by 64% between 2004 and 2014. At the same time, in 2016, 42,000 Americans died as a result of an opioid-related overdose. Reider (2019) adds that for the year 2017, 68% of individuals who died due to drug overdoses did so because of an opioid. Thus, it is apparent that the abuse of opioids is an epidemic that is continuing to greatly affect the United States.

However, it is important to note that while the opioid epidemic is ravaging the country, it is disproportionately affecting certain areas within the United States. More specifically, rural areas¹ have been hit the hardest by the opioid epidemic, with some locations having the highest overdose mortality rates in the country, such as West Virginia (Rigg, Monnat, & Chavez, 2018). Rural states such as Ohio and Kentucky have had the largest increase in opioid mortality rates over the past two decades, increasing 584% and 682% (Rigg et al., 2018). The rural counties in West Virginia, though, have the highest opioid mortality rates in the country, with 32.3 deaths per 100,000 people in the population (Rigg et al., 2018). The relative isolation and lack of resources combined with the likelihood of injury due to manual labor positions, which result in

¹ Rural areas are defined as “places with small population sizes and/or densities that exhibit variable levels of collective efficacy” (DeKeseredy & Schwartz, 2009, p. 20)

the prescribing of prescription pain pills, in rural areas have contributed to the detrimental effect of the opioid epidemic in rural areas (Rigg et al., 2018).

The opioid epidemic has affected the United States as a whole but has been more detrimental to the rural areas of the United States. As a result, opioid abuse in rural areas is a problem that must be addressed, given the high mortality rates and an increase in the mortality rate that have been attributed to opioid overdoses. Thus, the purpose of this paper is to analyze the opioid epidemic in rural America in order to determine the extent of the problem as well as provide possible explanations and policy implications to address the issue. First, a review of the existing literature of the opioid epidemic in rural areas shall be presented along with a theoretical framework that will assist in evaluating the issue and determining how it is perpetuated. Then, policy implications will be presented.

Literature Review

In order to better understand the opioid epidemic in rural areas, the history of the opioid epidemic, in general, must first be analyzed. In addition, the current status regarding the rural opioid epidemic will also be analyzed, along with the sub-factors of geographical location, lack of resources, socioeconomic factors, and those burdens which prevent assistance from reaching rural areas.

The United States Opioid Epidemic

Opioids in the United States are not a new phenomenon as they have existed for quite some time. In fact, opiates have been used for treatment purposes since the late 1800s and early 1900s, with the drugs being used for a variety of conditions such as coughs, diarrhea and minor pains (Lyden & Binswanger, 2018). However, opioids were prescribed to individuals by doctors for a large variety of ailments because of the lack of federal and industry oversight. Essentially,

doctors could prescribe opiates to patients for just about any reason and any ailment, which resulted in the noticing of the risks of their use, mainly the risks of overdose, death, and addiction. As a result of the unfiltered distribution of opiates by doctors in the early 1900s, the Harrison Anti-Narcotic Act (HANA) was passed into law in 1915 which regulated the prescribing of opiates. This meant that doctors could no longer freely prescribe opiates for any ailment as had been done before the implementation of the act. It is because of this that the consumption of opiates was reduced, given that individuals could no longer receive them freely (Lyden & Binswanger, 2018). In addition, the implementation of this act was thought to have prevented the first opioid epidemic in the United States.

However, Lyden and Binswanger (2018) note that the current opioid epidemic can be tied to the latter part of the 20th century, where opioids began to be reviewed again as a method to treat pain. Before this, opioids were traditionally reserved for cancer pain, patients who were nearing death, and small instances of severe pain. Opioids were still limited in their use as was meant to be by the HANA. It should be noted, though, that these three common uses for opiate drugs began to dwindle as the American Pain Society (APS) started to treat pain as the fifth vital sign, thus indicating that it needed to be monitored and treated effectively (Lyden & Binswanger, 2018). As a result, in the 1980s, pharmaceutical companies began to market prescription-grade opiates to medical professionals, falsely stating that the risk of addiction for their newly developed opiates was less than 1% (Lyden & Binswanger, 2018). It was in the 1980s that the current opioid epidemic was born and the introduction of new opiates to treat pain, with supposed minimal addiction risks, sparked the prescribing of these drugs by doctors to patients for pain.

Reider (2019) notes that the epidemic came in three waves after the initial implementation of the APS's interpretation of pain as the fifth vital sign in the 1980s. The first wave came in the 1990s, with the increase in the prescribing of newly developed opiates. Lyden and Binswager (2018) coincide with this, in that they indicate that a new form of slow-release oxycodone was developed in the 1990s. This new oxycodone was marketed as having a lesser risk of getting the patient high, as well as a much lower risk of addiction because the medication was released at a much slower rate in the body than previous opiates. Physicians were constantly reassured by pharmaceutical companies that the new prescription opioid pain relievers were not addictive, which resulted in the first wave of increased prescriptions in the 1990s (National Institute on Drug Abuse, 2019a). The increases in addiction and prescribing of opioids ultimately resulted in the Food and Drug Administration (FDA) forcing pharmaceutical companies to remove the label that indicated newly developed opioids were safer than previous ones in 2001 (Lyden & Binswager, 2019).

Even though the FDA forced the removal of misleading labels, the damage had already been done and up until 2010, the amount of opioids being prescribed continued to increase (Reider, 2019). In addition, diversion also increased with the increase in the prescribing of opioids. Diversion is the use of prescription drugs by another person whom they are not prescribed to. Thus, the person who was originally prescribed the opiates, receives them and then gives or "diverts" them to the person who wants them (Liu, Pei, & Soto, 2019). As a result of all of these increases, the prescribing of opioids peaked in 2010, with 225 million prescriptions being dispensed, which resulted in a rate of almost 82 prescriptions per 100 persons, indicating that the problem was continuing well after the 1990s (Lyden & Binswager, 2019).

Nonetheless, even though the amount of prescription opioids continued to increase and peaked in 2010, the second wave of the opioid epidemic began to take place that same year. Reider (2019) notes that in 2010 there began to be an increase in the overdose deaths that were related to non-prescription opioids, mainly heroin. This increase in the amount of heroin overdoses was partly due to the fact that efforts to curb the liberal prescribing of opioids were being implemented in order to help stop the epidemic (Liu et al., 2019). The problem was that as individuals were being dispensed fewer prescriptions, or were no longer being prescribed opioids, the addiction remained. Just because the opiates were taken away, did not mean that the addiction went away as well. These efforts to help curb the epidemic at the time, resulted in the birth of the second wave of the epidemic. Individuals began to search for a cheaper, more available replacement, and they found that replacement in heroin². Liu et al. (2019) note that between 2002 and 2013, there was a 282% increase in the amount of overdoses that were related to heroin. More specifically, 80% of heroin users in that time period admitted that their addiction had started through the use of prescription opioids. The extent of the heroin problem is also shown by the fact that heroin-related deaths are about as equal to prescription opioid deaths, even though there was an increase from 2002 to 2013 (Reider, 2019).

As the crackdown on the prescribing of opioids made them more difficult to obtain, users began to turn to heroin as a cheaper and more readily available option (Liu et al., 2019). However, heroin and prescription opioids are not the only drugs that have been attributed to perpetuating the nation's opioid epidemic. In fact, there is a third wave of the opioid epidemic which started in 2013, and it involves the production and use of synthetic opioids³(Reider, 2019).

² Heroin is an opioid drug created from morphine, a substance naturally found in opium plants (National Institute on Drug Abuse, 2019b)

³ Synthetic opioids are drugs that are synthetically designed to provide pain relief and mimic the effects of naturally occurring opioids such as morphine (Center for Disease Control and Prevention, 2019).

The rise in deaths for these types of opiates rivaled the rates of the other two common opioids, with the sharpest rises in synthetic opioid overdose deaths occurring in 2016 and 2017 (Liu et al., 2019; Reider, 2019). This type of opiate is what is currently plaguing the United States, as well as rural areas. However, all three still appear to exist in a combination that continues to increase the overdose deaths that are occurring (Lyden & Binswager, 2018).

It should be noted that a large part of the opioid epidemic can be attributed to the medical community. This is because the liberal prescribing of opioids to patients is what essentially kicked off the first wave of the epidemic and continued into recent years (Reider, 2019). For example, a large percentage of dispensed opioids were prescribed because American surgeons wrote these prescriptions for more pain pills than patients would actually take (Reider, 2019). One such statistic shows that for some surgeries, patients had between 8 and 37 pills left over after they had taken the original prescribed amount. In addition, prescriptions were also being filled well after surgeries were completed, with some doctors prescribing opiates up to three months post-operation. This is further shown by the fact that a majority of opioid users state that their misuse started with prescription pain medications (Nelson, Juurlink, & Perrone, 2015). The initial prescribing of opiates by the medical community in the 1990s, combined with the crackdown on the ability to prescribe, led to the use of heroin and synthetic opiates, which in turn, led to the creation of the opioid epidemic.

Current Status of the Opioid Epidemic in Rural Areas

While the aforementioned waves of the opioid epidemic bring up the issue of three different types of opioids affecting rural areas, there are characteristics of these drugs relating to their use that cause them to affect the rural areas significantly. Rural residents are more likely to abuse prescription opioids than heroin or even synthetic opioids (Dunn et al., 2016; Keyes,

Cerda, Brady, Havens, & Galea, 2014). Keyes et al. (2014) found that emergency room visits for opioid overdoses more than doubled from 2004 to 2010 for prescription opioids, while the heroin-related visits decreased. Thus, it is apparent that prescription opioids make up a majority of the opioid epidemic in rural areas, especially in Appalachia. In addition, several years later in 2019, over 50 medical professionals were charged in relation to the illegal prescribing of opioids in Appalachia (Dyer, 2019). Doctors would prescribe opiates without any medical cause to patients to profit off of their addiction. In some instances, doctors would leave pre-signed prescriptions so that office staff could go ahead and prescribe the opiates in their absence. These medical professionals were prescribing high volumes of opioids to the point where some were conducting unnecessary medical procedures in order to be able to prescribe patients more opioids. Keyes et al. (2014) found that these types of scenarios involve “pill mills” where doctors or licensed locations provide unfettered access to high volumes of prescription opioids.

The Perpetuation of the Rural Epidemic

As was noted previously, the opioid epidemic rose in three waves that spanned several decades (Reider, 2019). This epidemic was felt across the United States however, it has been disproportionately felt in rural areas (Rigg et al., 2018). It is apparent overdoses in rural areas are significantly more problematic than in the urban areas. More specifically, Appalachia has appeared to have been affected the most, with unmatched rates of overdoses and the use of opioids (Moody, Satterwhite, & Bickel, 2017). In addition, the use of opioids has continued to increase over the past 20 years in Appalachia as well as other rural regions. Dunn et al. (2016) noted that the problem of overdoses in rural areas is much more prevalent than in urban areas. Rural individuals are more likely to overdose as a result of opioid use, and they are also more likely to have more overdoses in their lifetime than their urban counterparts (Dunn et al., 2016).

Additionally, it appears that rural areas themselves also have areas within them that have experienced significant problems as a result of opioids. Rural coal mining areas in central Appalachia have the highest opioid use rates compared to the rest of Appalachia (Moody et al., 2017).

It has been established that rural areas are and have been disproportionately affected by the opioid epidemic. However, the epidemic continues to thrive because of several limitations that exist within rural areas that do not necessarily exist in urban places. These limitations will be briefly presented in order to understand why the problem continues to exist.

Geographical location. One of the largest problems as to why the rural opioid epidemic continues to persist is because of the geographical location of rural areas. Johnson, Mund and Joudry (2018) note that the distance between rural areas and treatment centers or programs to help individuals with an opioid addiction can be very far. They note that long drive times prevent individuals from being able to get to these places to receive treatment, thus indicating that the actual geographical location puts rural individuals at a disadvantage to be able to receive treatment. In addition, the actual availability of resources in rural areas is also a result of geographical location. This is because 90.4% of medical professionals, who are authorized to treat opioid abuse issues, are located in metropolitan areas, whereas only 1.3% of them are located in rural areas (Dunn et al., 2016). Couple this with the fact that 55% of individuals in Appalachia live in a rural setting; this provides a clear reason as to why people from rural areas disproportionately suffer from the opioid epidemic. Individuals living in these areas are isolated and they likely do not have the means or the opportunities to find transportation or health coverage to be able to reach these treatment centers and successfully pay for them (Keyes et al., 2014). Rigg et al. (2018) also note that the long travel times to treatment centers from rural areas

and the lack of public transportation, place a heavy burden on individuals living in rural areas. This is because if individuals miss certain treatments because they cannot physically get to the treatment, then there is a likelihood that they will relapse as a result.

Socioeconomic factors. Rural areas have also been traditionally characterized by poverty, namely from that fact that there are fewer economic opportunities available to rural residents (Keyes et al., 2014; Rigg et al., 2018). As a result, areas with high poverty rates and low economic opportunities have been associated with higher overdose rates (Rigg et al., 2018). In fact, in the year 2015, nearly 17% of individuals living in rural areas were considered to be living in poverty, compared to 13% of individuals who were living in urban areas (Rigg et al., 2018). Thus, rural areas are more economically disadvantaged than individuals in urban areas, which plays into the role of rural areas being affected more negatively by the opioid epidemic.

In addition, rural areas have traditionally relied on manual labor jobs such as coal mining and agriculture in order to survive. However, a majority of these types of jobs have been diminished or eliminated from the rural domain. Keyes et al. (2014) indicated that rural areas have faced major shifts in the types of employment that exist. The wages for low skilled jobs have decreased as the demand for higher skilled jobs has increased, as well as manufacturing positions which are typically located in urban areas. Thus, there is a deficit between the skills that rural individuals have and the actual jobs that are available to them. Essentially, the labor market in rural areas is unstable, which is directly associated with higher rates of drug use (Rigg et al., 2018).

Another factor that must be briefly taken into consideration is the actual type of labor that individuals living in these areas work in. Rural residents traditionally work in hard, manual labor jobs which puts them at a higher risk of job injury (Rigg et al., 2018). As was noted previously,

some of the medical professionals in these areas have illegally prescribed prescription opioids for aches and pains to rural individuals who are hurt on the job or because of their job. Even more, Keyes et al. (2014) find that prescription opioids are often prescribed so that there can be a steady workflow for certain jobs like coalmining. This indicates that since individuals in rural areas are more likely to work in hard labor jobs than their urban counterparts, they are placed at a higher risk of being prescribed opioids for their injuries or pain, as has been documented by Dyer (2019).

Lack of access to treatment. As was noted previously in the factor of geographical location, rural areas have limited access to treatment centers which forces individuals living in these areas to travel long distances in order to receive treatment (Johnson et al., 2018). However, it could also be said that rural areas lack treatment centers and physicians who can assist them with their addiction. According to Andrilla, Patterson, Moore, Coulthard and Larson (2018), doctors must obtain waivers from the Drug Enforcement Administration to be able to prescribe buprenorphine, which is a form of medication-assisted treatment (MAT) used to treat individuals who are addicted to opioids. In fact, buprenorphine and methadone are both medically assisted treatments that have been proven to effectively, “reduce illicit opioid use, risky injection behaviors, and overdose mortality” (Pollini, 2010, p. 354).

The issue at hand with a lack of access to treatment is that not all physicians have the license or are able to get the waiver to provide the treatment needed. In 2017, more than 50% of rural counties did not have a physician who could prescribe either of the two MATs and, of those that did, more than 40% of them were not seeing new patients (Andrilla et al., 2018). Wingrove, Park, and Bazemore (2016) noted that a majority of the physicians who are licensed to prescribe the treatment are psychiatrists but only 5.5% of these psychiatrists have practices in rural areas.

Thus, rural areas have a major detriment in that they lack access to treatment, which could help curb the opioid epidemic. Even at the most current levels, as was noted in the 2017 statistic, a majority of rural counties still do not have doctors nor treatment centers, which can provide the much needed treatment. West Virginia could be used as an example as to how there is a lack of resources. It was established earlier in this paper that West Virginia has the highest opioid usage and opioid mortality rates in the entire country (Moody et al., 2017; Rigg et al., 2018). It could be assumed that a state such as West Virginia would have more access to treatment for its rural residents who suffer from opioid abuse problems, given that it has the highest rates of abuse and overdose. However, Pollini (2019) notes that of the 55 counties in West Virginia, nearly half do not have medical personnel who can prescribe or provide MAT. Pollini (2019) also finds that in most communities in West Virginia, it is actually easier to obtain opioids illegally than it is to obtain buprenorphine legally. Essentially, the lack of resources in rural areas inhibits the opioid epidemic as resources are still lacking in the rural domain, even though the problem has been recognized for several years.

Collective Efficacy in Rural Areas

Rural areas have stereotypically been deemed to be areas that are free of crime due to the fact that they consist of small, tightknit communities (Donnermeyer & DeKeseredy, 2014). However, this is a stereotypical belief because rural areas do have criminal activity and sometimes at higher rates than urban areas. Nonetheless, one of the major theories that has been falsely applied to rural areas is that of social disorganization theory and, more specifically, the component of the theory known as collective efficacy. Chilenski, Syvertsen, and Greenberg (2015) state that collective efficacy is defined as, “the degree to which community residents work together to achieve shared values and solve community problems” (p.110). The idea behind

collective efficacy is that residents of a community will come together to prevent crime or, if a crime is happening, work together to solve it. This is where collective efficacy has been falsely applied to rural areas because rural communities have been thought to be so tightknit that they come together in a collective efficacy to prevent crime. It is because of this that the stereotype of rural communities having low crime rates has continued to exist.

However, Chilenksi et al. (2015) indicate that rural communities do not necessarily have the collective efficacy they have been thought to have. They note that in most instances, the amount of collective efficacy a community has does not have an association with the crime rates or problems within that community. This is also supported by Donnermeyer and DeKeseredy (2014) in which they note that collective efficacy cannot be fully applied to rural areas, due to the fact that they might not actually be as strong of a community as they are stereotypically thought to be. Nonetheless, it is possible that collective efficacy cannot be applied to rural areas because it is only being seen as a one-dimensional component. What is meant by this is that collective efficacy has only been traditionally viewed as the degree to which individuals essentially come together to prevent or stop certain problems. But, there is a possibility that collective efficacy can be two-dimensional in the sense that members of a community can actually come together to allow criminal activity or certain problems to occur (DeKeseredy & Schwartz, 2009; Donnermeyer & DeKeseredy, 2014).

This two-dimensional aspect of collective efficacy has typically been applied to the crime of domestic violence, however, Donnermeyer and DeKeseredy (2014) note that it could be applied to several different occurrences in rural areas because of how the culture is set up. Thus, the second dimension can be applied to rural areas because while they are tightknit, it is possible that they are so tightknit that they further the issue at hand: the rural opioid epidemic. In rural

areas, there is a social stigma within the community against drug addicts that appears to create a barrier between the community and the individuals who are engaging in the drug abuse (Bunting, Oser, Staton, Eddens, & Knudsen, 2018; Pollini, 2019; Rigg et al., 2018). Rural communities might not understand or be educated about the opioid problem that is going on in their communities, which in turn may cause them to reject any type of changes. Bunting et al. (2018) find that community stigma serves as a barrier for treatment because there are instances where rural communities do not want a treatment center to be implemented in their area simply because of the stigma behind it. In addition, opioid addiction is seen as a choice rather than a disease or medical problem in rural communities (Pollini, 2019). Rigg et al. (2018) even go as far to note that the tightknit nature of rural communities, where everyone knows one another, is another barrier that prevents individuals from seeking treatment. This is because they do not want the people they know to see them as addicts or know that they have a problem with opioid abuse. Basically, the idea of someone being labeled as an addict, “can be a powerful deterrent to seeking help in some small towns” (Rigg et al., 2018, p. 125).

The previous paragraph provides some of the reasoning as to why the second dimension of collective efficacy might be at play in rural areas. More specifically, the interpretation by Bunting et al. (2018) is most striking, in that rural communities find it socially unacceptable to put treatment centers in their towns because of the negative connotation behind them. In other words, treatment centers are not seen as places of change to help put a dent in the opioid epidemic but are rather seen as nuisances. Falling back to the example of West Virginia, Pollini (2019) brings up the point that some programs were implemented in order to help with the opioid epidemic, but the stigma from the community ultimately ended up being their demise. To be more specific, harm reduction programs were implemented in some counties, most notably

Kanawha County with its needle exchange program. The program was successful, and it served more than 15,521 clients in 2017 (Pollini, 2019). However, harsh criticisms from the local government and some parts of the community ultimately ended up in the program shutting down. All in all, Donnermeyer and DeKeseredy's (2014) second dimension of collective efficacy can be applied to rural areas affected by the opioid epidemic because they continue to perpetuate the stigma behind opioid addiction, ultimately deterring individuals from seeking treatment and preventing possible treatment programs from being implemented into the community.

Policy Implications

It is apparent that the opioid epidemic is a problem that is significantly affecting rural areas since they have the highest rates of overdoses as well as the highest rates of use (Moody et al., 2017). Nonetheless, steps have been taken to address the issue, but the problem is that they have not fully focused on rural areas. More specifically, one of the most important policies that must be addressed is that of treatment, because treatment is what will ultimately help individuals end and prevent future addiction. More importantly, as has been noted, medication-assisted treatment (MAT) is a form of treatment that has been implemented across the United States to treat those who have an opioid addiction. Pecoraro, Ma, and Woody (2012) note that MAT is an effective form of treatment for opioid addiction because the medications used for treatment help to stop cravings and use. The main types of medications used in MAT are methadone, naltrexone and buprenorphine. Each of these medications block dependence and lessen withdrawal symptoms in those who take them. Pecoraro et al. (2012) also indicate that the medications essentially help individuals stop taking opioids or abusing them. It should be noted that MAT can be used to treat addictions to a variety of opioids that range from heroin, to synthetic opioids and prescription opiates.

Opioid addiction is a disease and must be categorized as such in order to be treated effectively (Pecoraro et al., 2012; Volkow, Frieden, Hyde, & Cha, 2014). Just like any other disease that does not necessarily have a cure, such as diabetes, treatments and medications are still utilized in order to help individuals recover and manage the symptoms (Volkow et al., 2014). This is where MATs come into play because when they are prescribed to those with opioid addictions, they have been proven to help in recovery. As Pecoraro et al. (2012) note, MATs stop some of the withdrawal symptoms associated with addiction, specifically when someone is attempting to quit the use of the drug. They also help stop dependence by sometimes replacing the actual dependence with the medication, such as methadone which is a type of replacement therapy. However, MATs such as buprenorphine, do not act as a replacement therapy and mainly focus on lowering the severity of physical dependence and withdrawals (Pecoraro et al., 2012). Volkow et al. (2014) find that not only does MAT help with the symptoms and dependence associated with opioid addiction, but it also has a significant effect on overdose rates. Volkow et al. (2014) indicate that when the availability of methadone and buprenorphine were increased in Baltimore, the rates of overdose decreased by 50%. In addition, when MATs were utilized, they also increased the rate of retention of individuals in treatment programs. The combination of both MATs and psychosocial treatment programs also increase effectiveness, by decreasing the amount of illicit opioid use, drug overdoses, and drug overdose deaths (Pecoraro et al., 2012; Volkow et al., 2014).

The use of MATs to treat opioid dependence is a useful policy implication, given that it has been shown to decrease overdose rates and use as well as help with recovery (Pecoraro et al., 2012; Volkow et al., 2014). However, the problem is that these types of treatment programs have typically excluded rural areas and have not been proportionately placed in rural areas, which

hinders recovery and treatment efforts. As was previously noted, medical professionals must obtain waivers in order to be able to prescribe some of the MATs that are commonly utilized (Andrilla et al., 2018). However, the treatment clinics that would have the licensed physicians are scarce in rural areas and are more centrally located in urban spaces, making it more difficult for individuals living in rural areas to make it to treatment centers (Bunting et al., 2018). It is because of this that treatment centers do not necessarily need to be implemented more into rural areas, but more family physicians, nurse practitioners, and physician assistants must be utilized to help dispense MATs. This is because family physicians, such as doctors, nurse practitioners and physician assistants, are the professionals who are most likely to work in rural areas (Wingrove et al., 2016). One of the biggest barriers to MAT treatment is that most treatment centers are not located in rural areas, thus lack of transportation comes into play because individuals do not have a vehicle or means of transportation. As a result, they will likely not be able to get to treatment (Bunting et al., 2018). It is also not likely for individuals to access public transportation either because it is not as prevalent in rural areas.

Because of the lack of access to MAT treatment centers in rural areas, it is more plausible to bring the treatment to rural areas, rather than have individuals travel far distances to them. Wingrove et al. (2016) note that family physicians would be the best medium to be able to dispense MATs to rural residents who are addicted to opiates. Since these medical professionals are more likely to work in rural areas, they would have a greater likelihood of being able to dispense these treatments to rural areas. However, it should be noted that those physicians who do work in rural areas, usually do not have the necessary waivers that are needed to prescribe such treatments (Andrilla et al., 2018; Wingrove et al., 2016). As of 2017, only 502 rural nurse practitioners and 131 rural physician assistants had obtained DEA waivers to provide MATs,

which is lower than the projected number needed to effectively address the rural opioid epidemic (Andrilla et al., 2018). In addition, only one in five family physicians were approved to dispense MATs, which makes matters worse because that translates to 15.4% of all physicians in the United States (Wingrove et al., 2016). This is an issue given that around 17.6% of the population lives in rural areas. Thus, the percentages of physicians working in rural areas and residents in rural areas are closely aligned, meaning that family physicians have the best chance to dispense MATs.

Conclusion

The opioid epidemic has had a significant effect on the United States and has been felt across the entire country. More specifically, rural areas have been disproportionately affected by the epidemic (Dunn et al., 2016; Moody et al., 2017). Rural areas have the highest rates of overdose as well as the highest rates of illicit use of opioids, which further shows that the epidemic continues to ravage rural areas. In addition, the epidemic has been perpetuated because of the geographical location of rural areas, their socioeconomic statuses, and their lack of access to treatments (Andrilla et al., 2018; Dunn et al., 2016; Keyes et al., 2014; Rigg et al., 2018). It appears that the most significant factors that have furthered the epidemic are geographical location and lack of access to treatment. These two factors ultimately prevent rural residents who have an opioid addiction from seeking the most effective type of treatment, which is medication-assisted treatment (Pecoraro et al., 2012; Volkow et al., 2014). It appears that a cycle exists between the epidemic and these two factors because as long as these two factors are not addressed, then the opioid epidemic will continue to disproportionately affect rural areas.

However, rural areas do have a chance at tackling the epidemic through the use of family physicians, nurse practitioners, and physician assistants. These types of medical professionals are

the ones that are most likely to work in rural areas (Wingrove et al., 2016). Thus, these individuals can be most effective in treating opioid addiction because if they are located the most in rural areas, then they are most likely to be able to bring the treatment to rural residents. This helps to diminish the lack of access to treatment and geographical location, because rural individuals would not have to transport themselves long distances to receive treatment (Andrilla et al., 2018; Bunting et al., 2018). However, barriers do exist within this solution given that in order for physicians to prescribe MATs, they must be licensed through the DEA and a majority of physicians who practice in rural areas do not have the necessary licensing (Andrilla et al., 2018; Wingrove et al., 2016). Thus, incentives must be introduced to get rural physicians to obtain the waivers needed to prescribe MATs so that they can start doing so. Such actions would help reduce overdose deaths and opioid use in these areas (Volkow et al., 2014).

Finally, it has been noted that the epidemic can be tackled at the medical level; however it can also be addressed through the community level. A significant barrier to addressing the rural opioid epidemic is that of the stigma that exists in the community. This is because there is a negative stigma in rural areas that is attributed to those who are addicted to opiates (Bunting, et al., 2018; Pollini, 2019; Rigg et al., 2018). Thus, the community must be addressed in order to successfully implement treatment programs via family physicians and doctors, because there are instances where rural communities do not want these programs in their community simply because of the negative connotation associated with them (Bunting et al., 2018). Donnermeyer and DeKeseredy (2014) note that these types of cultures that support social stigmas are the result of the two-dimensional aspect of collective efficacy, where rural areas ultimately come together to allow problems to occur. In this case, rural areas' inattention to address the opioid epidemic, as well as their purposeful efficacy to prevent treatment centers from being implemented,

perpetuate the opioid epidemic. However, this can be changed, as the culture in the community can be addressed with community events, art, programs, and educational seminars that take away the negative stigma behind opioid addiction (DeKeseredy & Schwartz, 2009; Donnermeyer & DeKeserdy, 2014). Once the culture within the community is changed, then more treatment programs can be implemented more effectively, ultimately addressing the opioid epidemic to its fullest potential.

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